

Remarks

35 U.S.C. §103

On page 2 of the Office Action, all of the 103 rejections set forth in the Office Action of August 24, 2005 are repeated. Referring to the Office Action of August 24, 2005, at page 3, claims 1 to 2 and 4 were rejected under 35 U.S.C. §103(a) as being unpatentable over Speer et al. (US 5529833) in view of Putnam et al. (US 6794191).

Applicants respectfully traverse this rejection to the extent it is applied to the claims as now presented.

Applicants submit that no new matter has been added. Support for amended claim 1 can be found e.g. in prior claim 7, now canceled.

Claim 1 as now amended requires that the oxygen indicator comprises all or part of a printed image. Applicants respectfully submit that Putnam teaches away from this limitation. Putnam et al. state at column 1, lines 54 to 65 that

[d]ue to the nature of most suitable organic solvents, *direct printing* or painting onto flexible packaging using these sensor solutions has the potential for changing the engineered properties of these multilayer films including delamination, cracking, changes in film orientation and migration of processing additives. These problems provide significant hurdles to practical implementation of solvent-based casting, paint *or printing* methodologies. Other significant problems are inherent to solvent use, such as, flammability of the solvents, hazardous waste storage and removal, and the elimination of toxic fumes for worker safety.

[Emphasis added]

Putnam et al. also state at column 2, lines 14 to 19 that

Application of even a thin polymer film in the sealing area can result in poor heat seals and package failure. Therefore, any process using "painted" sensors would require more elaborate film production equipment and orientation of the film during packaging than is commonly found in the industry.

Applicants respectfully submit that Putnam et al. discourage and teach away from "printing" or "painting" techniques for using the sensors of Khalil. Several undesirable consequences of such an approach are disclosed, including migration of process additives, flammability of solvents, etc. While flexible materials are referred to in these particular passages, Putnam et al. refer elsewhere to extrusion, molding or injection molding processes (col. 3, lines 7 to 9) which of course can result in either flexible or rigid products. Putnam et al. also refer to films as well as "other polymer shapes" such as caps, cap liners, lids, bottles, and rigid containers (col. 5, lines 14 to 16). Thus, in terms of the above cited passages

of Putnam et al., with respect to the undesirability of printing or painting the optical sensors of Khalil, no distinction is made in the reference based on flexibility or rigidity of the “polymer shapes”. Indeed, at least some of the undesirable consequences listed in the reference, such as flammability of solvents, have to do with factors independent of package type.

Putnam et al. instead promote dissolving the porphyrin sensors *in* the polymer. This is viewed by Putnam et al. as a key element of their invention:

As noted in Khalil (U.S. Pat. No. 4,801,655), a key element to creating useful luminescent oxygen probes from organic indicators such as porphyrins and chlorins is the complete dissolution of the indicator in the polymer.

Applicants submit that there would therefore be no motivation to combine the teachings of Putnam et al. with Speer et al. to provide a rigid container comprising:

- a) an oxygen barrier having an oxygen transmission rate of no more than 100 cc/m²/24hr at 25°C, 0% RH, 1 atm (ASTM D 3985);
- b) an oxygen scavenger; and
- c) an oxygen indicator comprising a luminescent compound;

wherein the oxygen indicator is substantially shielded by oxygen barrier layers from oxygen in the environment surrounding the container, and from oxygen in any headspace within the container; and wherein the oxygen indicator comprises all or part of a printed image.

To establish a *prima facie* case of obviousness, there must be i.a. the teaching or suggestion to make the claimed combination and the reasonable expectation of success, and both must be found in the prior art, and not based on applicant's disclosure. MPEP §706.02 (j). Applicants submit that in view of the above cited teachings in Putnam et al., there is no reasonable expectation of success in making the now-claimed combination.

On page 4 of the Office Action of August 24, 2005, at page 4, claim 7 was rejected under 35 U.S.C. §103(a) as being unpatentable over Speer et al. (US 5529833) in view of Putnam et al. (US 6794191), and further in view of Inoue et al. (US 5358876).

Applicants respectfully traverse this rejection to the extent it is applied to the claims as now presented.

Applicants rely on the comments above with respect to Putnam et al.

Inoue et al. use an oxygen indicator for indicating the presence or absence of oxygen “in a gaseous atmosphere” (see column 1, lines 10 to 12; see also column 14, lines 29 to 30 at claim 1). The reference contemplates head space scavenging of a gaseous me-

dium inside a package. This is clear for example with reference to column 4, lines 14 to 19, where Inoue et al. teach that

[w]hen the oxygen indicator composition is printed on a package bag or container, it is preferably printed on the inside of an [sic] transparent film having an oxygen barrier property, followed by laminating a film having an oxygen permeability of not less than 1000 ml/m²-Atm-day on the indicator layer.

Thus, Inoue et al. position a film with a relatively high oxygen transmission rate next to their oxygen indicator. See also column 4, lines 31 to 34, where Inoue et al. teach that the oxygen indicator is placed in an oxygen permeable bag. Such teachings are consistent with the goal of Inoue et al., to indicate the presence of oxygen in the gaseous atmosphere of the headspace inside the package. However, this would not substantially shield the oxygen indicator from oxygen in any headspace within the container. It would do just the opposite.

To combine Speer et al. with both Putnam et al. and Inoue et al. to arrive at the claimed combination of former claim 7, now amended claim 1 is not appropriate. This approach ignores the clear teaching away found in Putnam et al. with respect to printing and painting techniques for applying the sensors to the package.

In addition, Inoue offers printing only in the context of a head space oxygen scavenger; and not in an application where the oxygen indicator is substantially shielded by oxygen barrier layers from oxygen in the environment surrounding the container, and from oxygen in any headspace within the container. For these later applications, i.e. Putnam et al., printing of the oxygen indicator is discouraged.

On page 2 of the Office Action of May 26, 2006, claim 31 was rejected under 35 U.S.C. §103(a) as being unpatentable over Speer et al. (US 5529833) in view of Putnam et al. (US 6794191).

Applicants respectfully traverse this rejection to the extent it is applied to claim 31 as now presented. Applicants rely on the comments above with respect to Putnam et al., as claim 31 is dependent on amended claim 1.

Applicants respectfully ask for allowance of the claims as now submitted.

If any fees are deemed due, please charge same to Deposit Account No. 07-1765.

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DATE

Respectfully submitted,



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